

1/25

```

1  gactccgggt ggcaggcgcc cgggggaatc ccagctgact cgctcactgc cttcgaagtc
61  cggcgcccc cgggaggga cgggtggcc gcacctccc ggctgcggtg gctgtcgccc
121  ccacacctgc agccaggact cgatggagaa tccattccaa tatatggcca tgtggctctt
181  tggagcaatg ttccatcatg ttccatgctg ctgctgacgt cacatggagc acagaaatca
241  atgttagcag atagccagcc catacaagat cgtattgtat tgtaggaggc atcgtggatg
301  gatggctgct ggaacccct tgccatagcc agctcttctt caatacttaa ggatttacg
361  tggctttgag taatgagaat ttcgaacca catttgagaa gtatttccat ccagtgctac
421  ttgtgtttac ttctaaacag tcattttcta actgaagctg gcattcatgt cttcattttg
481  ggctgtttca gtgcagggt tcctaaaaa gaagccaact ggtgaatgt aataagtgt
541  ttgaaaaaaa ttgaagatct tattcaatct atgcataatg atgctacttt atatacgga
601  agtgatgttc acccagttg caagtaaca gcaatgaagt gctttctctt ggagttacaa
661  gttatttcac ttgagtcagg agatgcaagt attcatgata cagtagaaaa tctgatcatc
721  ctagcaaaac acagtttgtc ttctaattgg aatgtaacag aatctggatg caaagaatgt
781  gaggaactgg aggaaaaaa tattaagaa ttttgcaga gttttgtaca tattgtccaa
841  atgttcatca acacttcttg attgcaattg attcttttta aagtgtttct gttattaaca
901  aacatcactc tgctgcttag acataacaaa acactcggca tttcaaatgt gctgtcaaaa
961  caagtttttc tgtcaagaag atgatacagac ctggatcag atgaactctt agaaatgaag
1021  gcagaaaaat gtcattgagt aatatagtga ctatgaactt ctctcagact tactttactc
1081  atttttttaa tttattattg aaattgtaca tatttgtga ataattgaaa atgttgaata
1141  aaatatgta caagtgttgt tttttaagtt gcactgatat ttacctctt attgcaaaat
1201  agcatttgtt taagggtgat agtcaaaatta tgtattggtg gggctgggta ccaatgctgc
1261  aggtcaacag ctatgcttgt aggtcctgc cagtgtgga cactgacta ctggctctca
1321  ttgacttcct tactaagcat agcaaacaga ggaagaattt gtatcagta agaaaaagaa
1381  gaactatatg tgaatcctct tctttatact gtaatttagt tattgatgta taaagcaact
1441  gttatgaaat aaagaaattg caataactgg caaaaaaaaa aaaaaaa

```

SEQ ID NO : 1 Human IL-15 wild-type mature IL-15 (CDS from 373 to 861)

FIGURE 1A

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1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM ⁴⁴KCFLLELQVI ⁵²SLESGDASIH
61 ⁶⁴DTVEN⁶⁹LIIILA NNSLSSNGNV TESGCKECEE
91 LEEKNIKEFL QSFVHIVQMF INTS

SEQ ID NO :2

Human wild-type mature IL-15

FIGURE 1A (end)

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	646	672	
	ctc ttg gag tta caa gtt att tca ctt		<u>SEQ ID NO:3</u>
peptide 1:	45	51 52	
	L L E L Q V I S L		<u>SEQ ID NO:4</u>
	706	720	
	gaa aat ctg atc atc		<u>SEQ ID NO:5</u>
peptide 2:	64 65 68		
	E N L I I		<u>SEQ ID NO:6</u>
	706	723	
	gaa aat ctg atc atc cta		<u>SEQ ID NO:66</u>
peptide 2a:	64 65 69		
	E N L I I L		<u>SEQ ID NO:67</u>

FIGURE 1B

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peptide 1 : 45 51 52
 L L E L Q V I S L SEQ ID NO :4

-----mutant peptides-----

L D E L Q V I S L	<u>SEQ ID NO :7</u>
L E E L Q V I S L	<u>SEQ ID NO :8</u>
L K E L Q V I S L	<u>SEQ ID NO :9</u>
L R E L Q V I S L	<u>SEQ ID NO :10</u>
L L E L Q V I D L	<u>SEQ ID NO :11</u>
L L E L Q V I E L	<u>SEQ ID NO :12</u>
L L E L Q V I K L	<u>SEQ ID NO :13</u>
L L E L Q V I R L	<u>SEQ ID NO :14</u>
L L E L Q V I S D	<u>SEQ ID NO :15</u>
L L E L Q V I S E	<u>SEQ ID NO :16</u>
L L E L Q V I S K	<u>SEQ ID NO :17</u>
L L E L Q V I S R	<u>SEQ ID NO :18</u>

Figure 2A

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peptide 2 :	64 65 68 E N L I I	<u>SEQ ID NO :6</u>
<hr/> -----mutant peptides-----		
	K N L I I	<u>SEQ ID NO :19</u>
	R N L I I	<u>SEQ ID NO :20</u>
	E D L I I	<u>SEQ ID NO :21</u>
	E E L I I	<u>SEQ ID NO :22</u>
	E K L I I	<u>SEQ ID NO :23</u>
	E R L I I	<u>SEQ ID NO :24</u>
	E N L I D	<u>SEQ ID NO :25</u>
	E N L I E	<u>SEQ ID NO :26</u>
	E N L I K	<u>SEQ ID NO :27</u>
	E N L I R	<u>SEQ ID NO :28</u>

Figure 2B

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1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLDELQVI SLESGDASIH
61 DTVENLIILA NNSLSSNGNV TESGCKECEE
91 LEEKNIKEFL QSFVHIVQMF INTS

L45D SEQ ID NO :29

1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLEELQVI SLESGDASIH
61 DTVENLIILA NNSLSSNGNV TESGCKECEE
91 LEEKNIKEFL QSFVHIVQMF INTS

L45E SEQ ID NO :30

FIGURE 2C

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1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLKELQVI SLESGDASIH
61 DTVENLIILA NNSLSSNGNV TESGCKECEEE
91 LEEKNIKEFL QSFVHIVQMF INTS

L45K SEQ ID NO :31

1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLRELQVI SLESGDASIH
61 DTVENLIILA NNSLSSNGNV TESGCKECEEE
91 LEEKNIKEFL QSFVHIVQMF INTS

L45R SEQ ID NO :32

FIGURE 2C (continued)

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1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLLELQVI DLESGDASIH
61 DTVENLIILA NNSLSSNGNV TESGCKECEE
91 LEEKNIKEFL QSFVHIVQMF INTS

S51D SEQ ID NO :33

1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLLELQVI ELESGDASIH
61 DTVENLIILA NNSLSSNGNV TESGCKECEE
91 LEEKNIKEFL QSFVHIVQMF INTS

S51E SEQ ID NO :34

FIGURE 2C (continued)

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1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLLELQVI KLESGDASIH
61 DTVENLIILA NNSLSSNGNV TESGCKECEE
91 LEEKNIKEFL QSFVHIVQMF INTS

S51K SEQ ID NO :35

1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLLELQVI RLESGDASIH
61 DTVENLIILA NNSLSSNGNV TESGCKECEE
91 LEEKNIKEFL QSFVHIVQMF INTS

S51R SEQ ID NO :36

FIGURE 2C (continued)

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1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLLELQVI SDESGDASIH
61 DTVENLIILA NNSLSSNGNV TESGCKECEE
91 LEEKNIKEFL QSFVHIVQMF INTS

L52D SEQ ID NO :37

1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLLELQVI SEESGDASIH
61 DTVENLIILA NNSLSSNGNV TESGCKECEE
91 LEEKNIKEFL QSFVHIVQMF INTS

L52E SEQ ID NO :38

FIGURE 2C (continued)

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1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLLELQVI SKESGDASIH
61 DTVENLIILA NNSLSSNGNV TESSCKECEE
91 LEEKNIKEFL QSFVHIVQMF INTS

L52K SEQ ID NO :39

1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLLELQVI SRESGDASIH
61 DTVENLIILA NNSLSSNGNV TESSCKECEE
91 LEEKNIKEFL QSFVHIVQMF INTS

L52R SEQ ID NO :40

FIGURE 2C (end)

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1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCKVTAM KCFLLELQVI SLESGDASIH
61 DTVKNLIILA NNSLSSNGNV TESGCKECE
91 LEEKNIKEFL QSFVHIVQMF INTS

E64K SEQ ID NO :41

1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCKVTAM KCFLLELQVI SLESGDASIH
61 DTVRNLIILA NNSLSSNGNV TESGCKECE
91 LEEKNIKEFL QSFVHIVQMF INTS

E64R SEQ ID NO :42

FIGURE 2D

13/25

1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLLELQVI SLESGDASIH
61 DTVEDLIILA NNSLSSNGNV TESGCKECEEE
91 LEEKNIKEFL QSFVHIVQMF INTS

N65D SEQ ID NO :43

1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLLELQVI SLESGDASIH
61 DTVEELIILA NNSLSSNGNV TESGCKECEEE
91 LEEKNIKEFL QSFVHIVQMF INTS

N65E SEQ ID NO :44

FIGURE 2D (continued)

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1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLLELQVI SLESGDASIH
61 DTVEKLIILA NNSLSSNGNV TESSGCKECEE
91 LEEKNIKEFL QSFVHIVQMF INTS

N65K SEQ ID NO :45

1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLLELQVI SLESGDASIH
61 DTVERLIILA NNSLSSNGNV TESSGCKECEE
91 LEEKNIKEFL QSFVHIVQMF INTS

N65R SEQ ID NO :46

FIGURE 2D (continued)

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1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLLELQVI SLESGDASIH
61 DTVENLIDLA NNSLSSNGNV TESGCKECEE
91 LEEKNIKEFL QSFVHIVQMF INTS

I68D SEQ ID NO :47

1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLLELQVI SLESGDASIH
61 DTVENLIELA NNSLSSNGNV TESGCKECEE
91 LEEKNIKEFL QSFVHIVQMF INTS

I68E SEQ ID NO :48

FIGURE 2D (continued)

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1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLLELQVI SLESGDASIH
61 DTVENLIKLA NNSLSSNGNV TESGCKECEEE
91 LEEKNIKEFL QSFVHIVQMF INTS

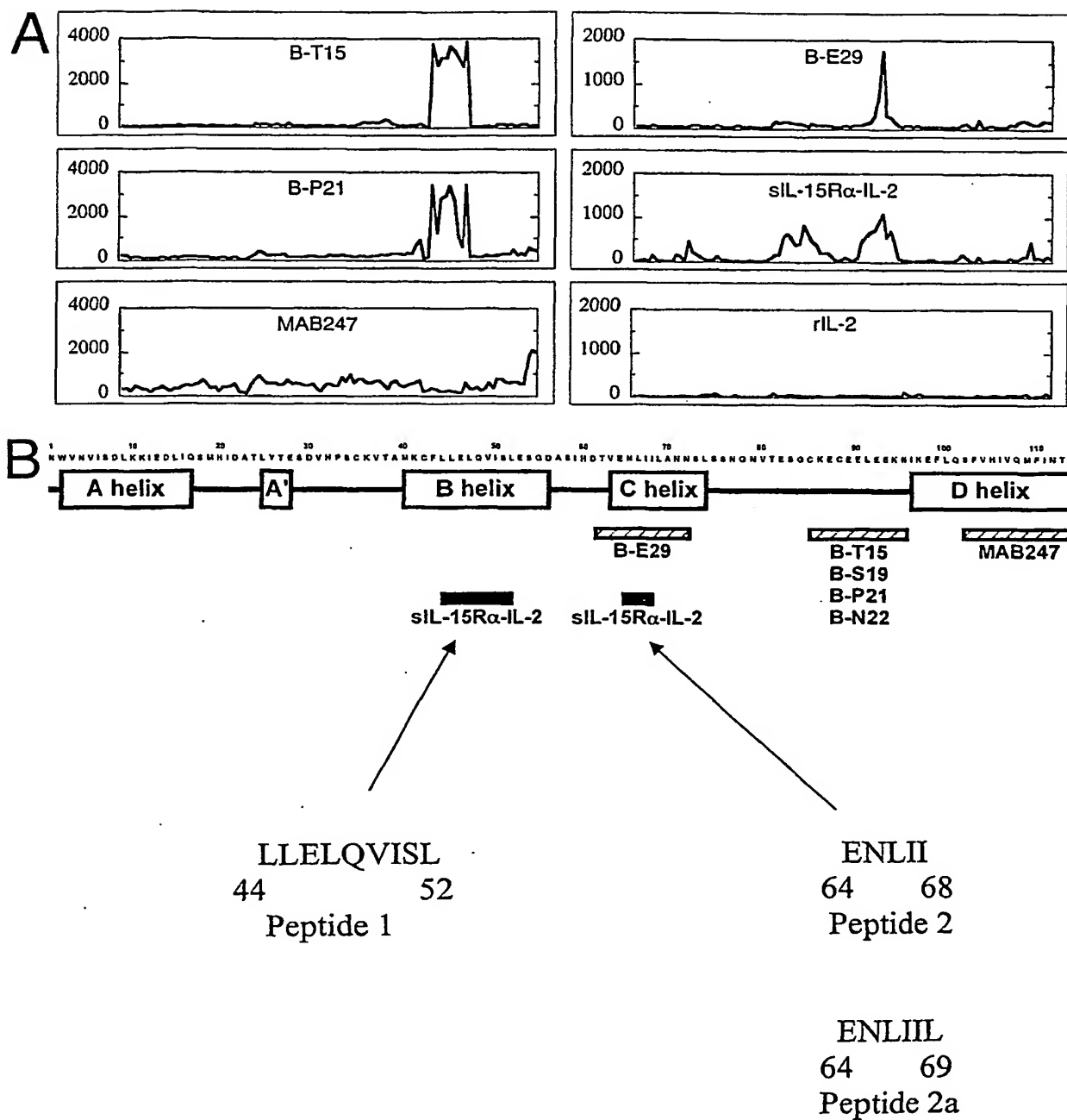
I68K SEQ ID NO :49

1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLLELQVI SLESGDASIH
61 DTVENLIRLA NNSLSSNGNV TESGCKECEEE
91 LEEKNIKEFL QSFVHIVQMF INTS

I68R SEQ ID NO :50

FIGURE 2D (end)

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**FIGURES 3A and 3B**

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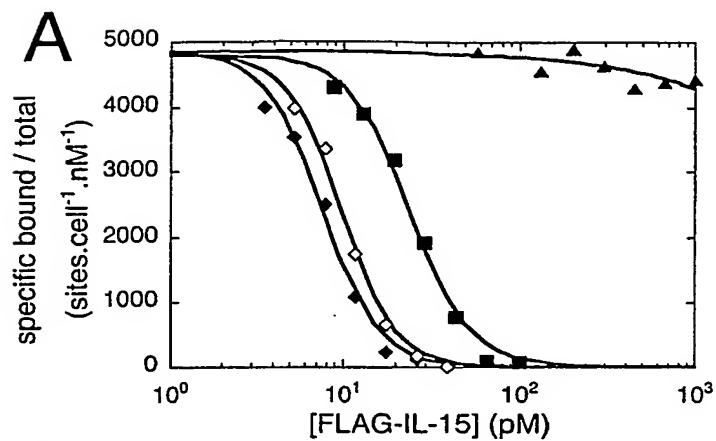


FIGURE 4A

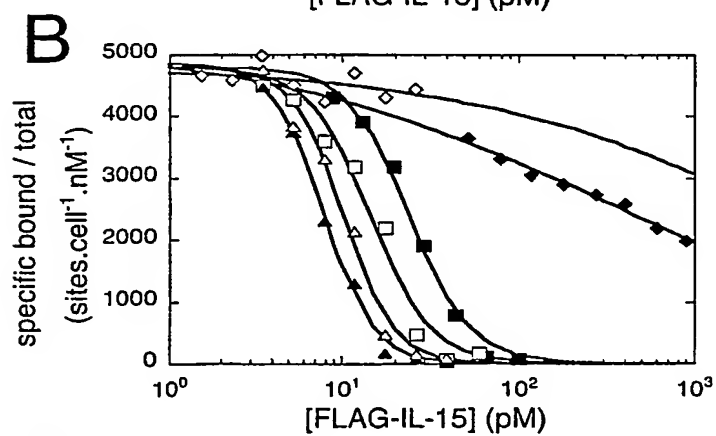


FIGURE 4B

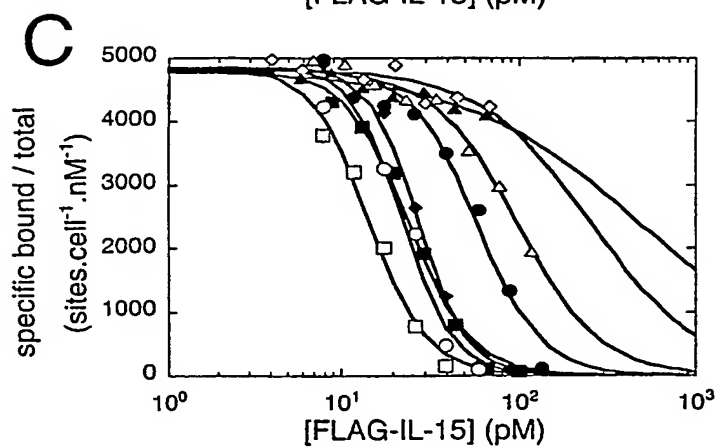


FIGURE 4C

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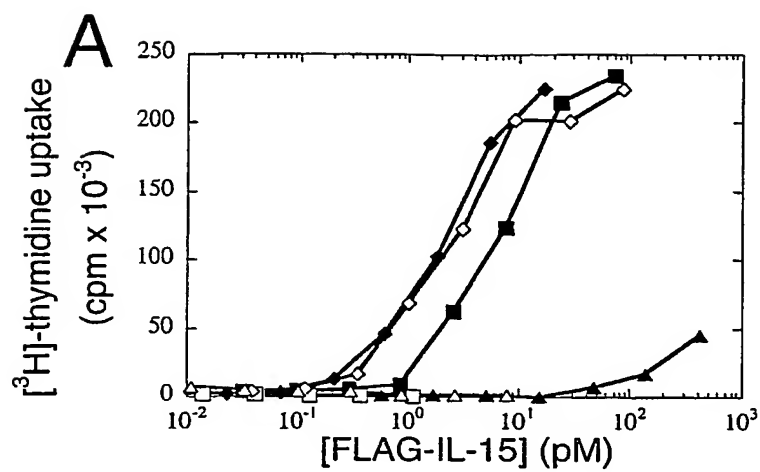


FIGURE 5A

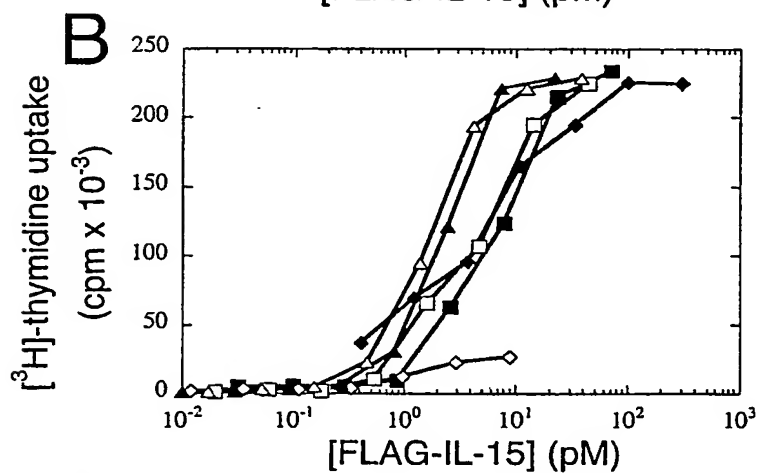


FIGURE 5B

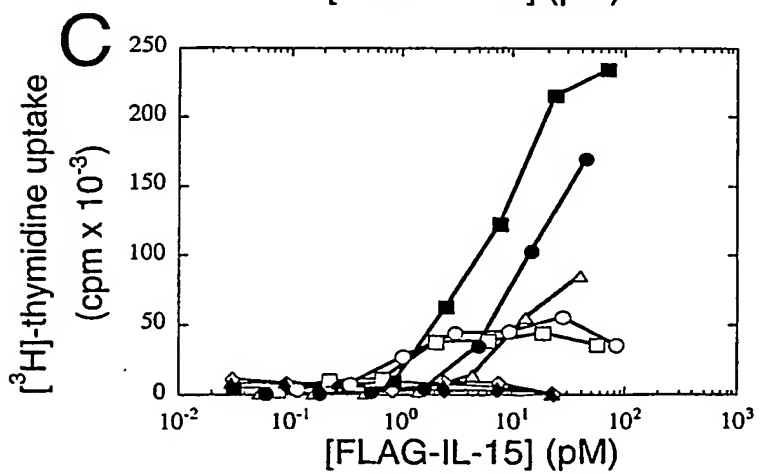
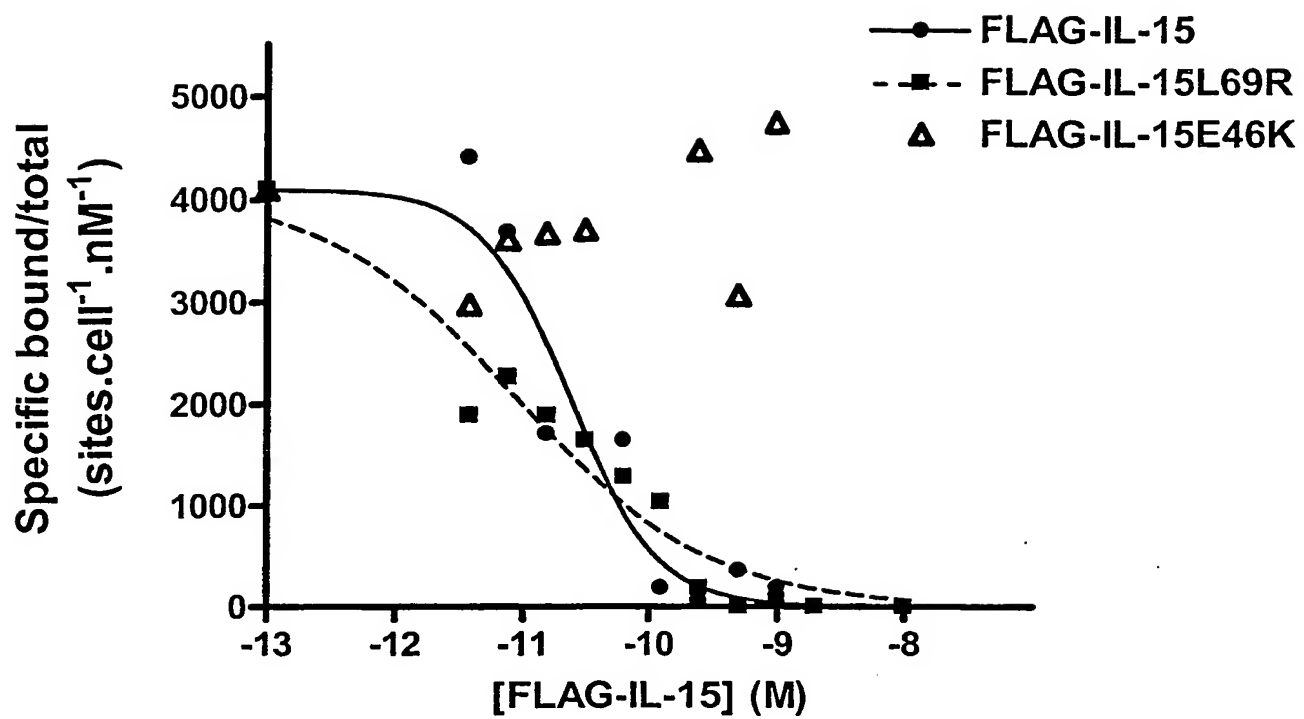
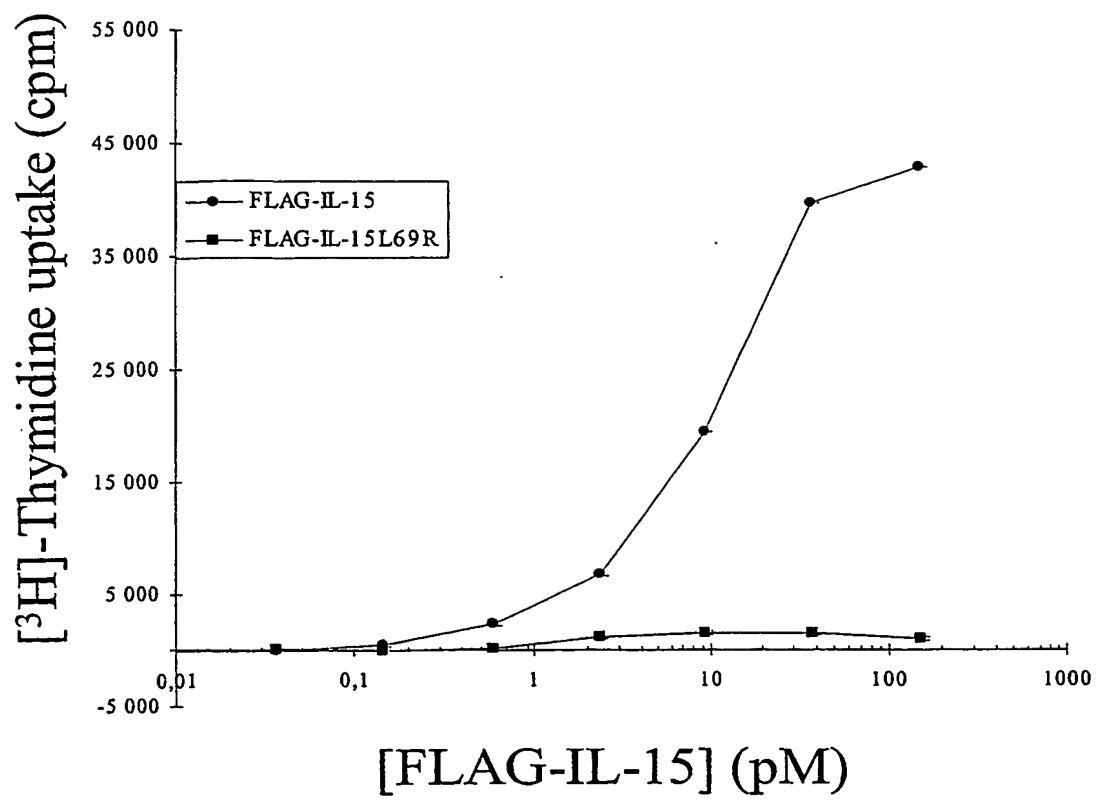


FIGURE 5C

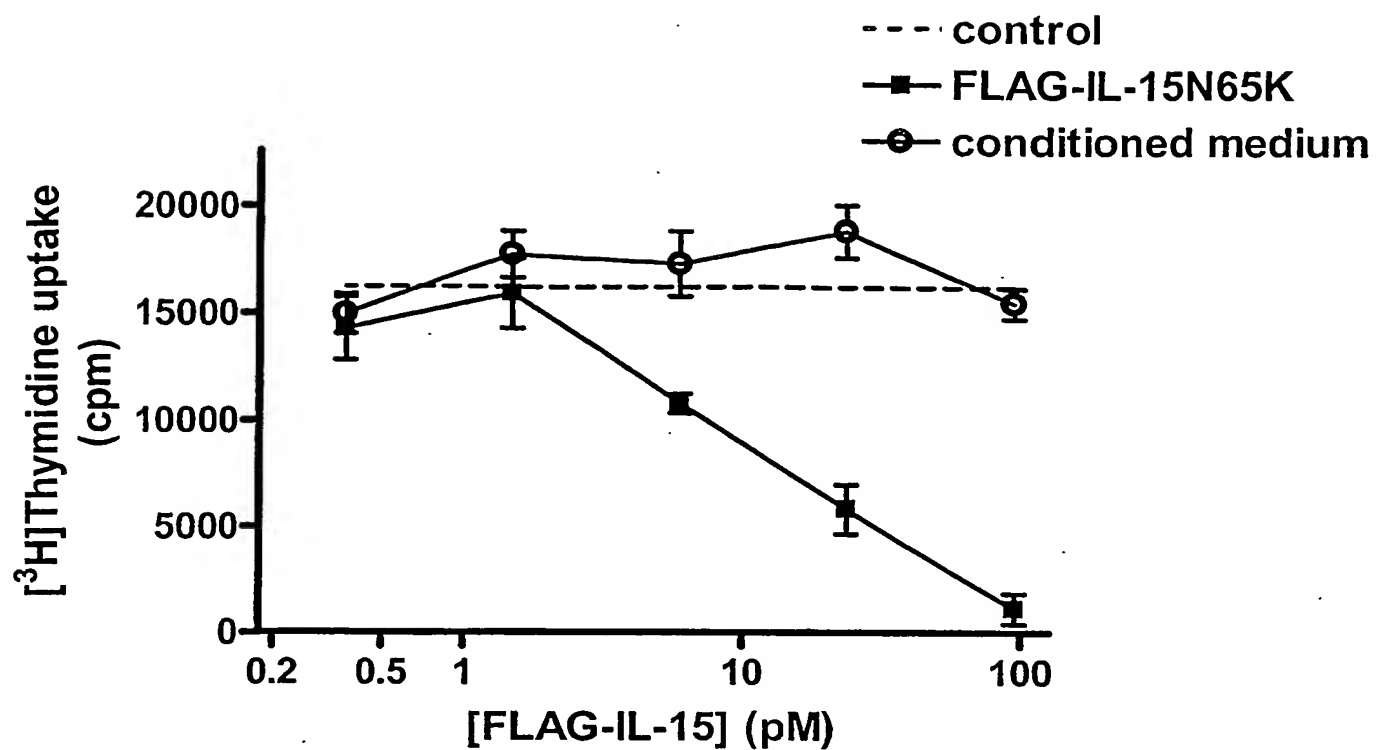
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**FIGURE 6**

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**FIGURE 7**

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**FIGURE 8**

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peptide 2 : 64 65 68 69
 E N L I I L SEQ ID NO : 67
-----mutant peptides-----

K N L I I L	<u>SEQ ID NO : 68</u>
R N L I I L	<u>SEQ ID NO : 69</u>
E D L I I L	<u>SEQ ID NO : 70</u>
E E L I I L	<u>SEQ ID NO : 71</u>
E K L I I L	<u>SEQ ID NO : 72</u>
E R L I I L	<u>SEQ ID NO : 73</u>
E N L I D L	<u>SEQ ID NO : 74</u>
E N L I E L	<u>SEQ ID NO : 75</u>
E N L I K L	<u>SEQ ID NO : 76</u>
E N L I I D	<u>SEQ ID NO : 77</u>
E N L I I E	<u>SEQ ID NO : 78</u>
E N L I I K	<u>SEQ ID NO : 79</u>
E N L I I R	<u>SEQ ID NO : 80</u>
E N L I R L	<u>SEQ ID NO : 81</u>

FIGURE 9

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1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLLELQVI SLESGDASIH
61 DTVENLIIDA NNSLSSNGNV TESGCKECEE
91 LEEKNIKEFL QSFVHIVQMF INTS

L69D SEQ ID NO :82

1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLLELQVI SLESGDASIH
61 DTVENLIIEA NNSLSSNGNV TESGCKECEE
91 LEEKNIKEFL QSFVHIVQMF INTS

L69E SEQ ID NO :83

FIGURE 10

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1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLLELQVI SLESGDASIH
61 DTVENLIKA NNSLSSNGNV TESGCKECE
91 LEEKNIKEFL QSFVHIVQMF INTS

L69K SEQ ID NO : 84

1 NWVNVISDLK KIEDLIQSMH IDATLYTESD
31 VHPSCCKVTAM KCFLLELQVI SLESGDASIH
61 DTVENLIIRA NNSLSSNGNV TESGCKECE
91 LEEKNIKEFL QSFVHIVQMF INTS

L69R SEQ ID NO : 85

FIGURE 10 (end)